

REMARKS/ARGUMENTS

This Amendment and the following remarks are intended to fully respond to the Office Action dated August 18, 2004. In that Office Action, claims 1-23 were examined, and all claims were rejected. More specifically, claims 1-23 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over “C++: Effective Object-Oriented Software Construction” by Dattatri, in view of “Compiler Transformation for High-Performance Computing” by Bacon et al. reconsideration of these rejections, as they might apply to the original and amended claims in view of these remarks, is respectfully requested.

In this Response, claims 1, 12, and 22 have been amended; no claims have been canceled; and no new claims have been added.

Claim Rejections - 35 U.S.C. § 103

Claims 1-23 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over “C++: Effective Object-Oriented Software Construction” by Dattatri, in view of “Compiler Transformation for High-Performance Computing” by Bacon et al.

Applicants respectfully traverse the section 103 rejections. The Examiner has failed to substantiate a prima facie case of obviousness because one or more of the requirements of a prima facie case is absent. Indeed, such a prima facie case can only be met when **all** of the following requirements are met: (1) there must be some suggestion or motivation in the references themselves (or in the knowledge available to those skilled in the art) to combine the references; (2) there must be a reasonable expectation of success; and (3) the combined references must teach or suggest all the claim limitations. See MPEP §§ 706.02(j) and 2143. In this case, Dattatri does not describe generating an optimized instruction in association with the call site to retrieve, without requiring a function call, via the return constant table the constant return value associated with the target method. Indeed, Dattatri teaches away from the present invention as described below.

The amended claims relate to a method or apparatus for optimizing indirect method invocation at a call site. The call site is associated with a receiver object, and programmed to call a target method of a plurality of possible target methods that return constant values. The present invention obviates the need for a function call at these sites. The invention obviates the

need for the function call by generating a return constant table which has constants, as table entries. The constants are returned based on specific calls. Next, during compile time, instructions that would normally call the function that generates the constant are replaced with an optimized instruction that merely retrieves the constant value. As a result of this generated “return constant table” and the “optimized instruction,” there is no need to call the function.

Dattatri relates to a system or method that makes function calls more efficient by replacing an explicit call with a pointer to a corresponding virtual table pointer. The virtual table pointer is retrieved, the index to the address of the function call is referenced, and the function’s address is used within the code flow to quickly call the function. While the process is generally more efficient in identifying and accessing the function code location, the function is still called. The continued reliance, in Dattatri, on a function call is made clear where the comment for step B states, “go to the index where the address of g() is stored,” and for step C: “jump to the function whose address is stored here.”

Each of the independent claims recited in the present application, i.e., claims 1, 12, and 22, relate to the generation of the return constant table and an optimized instruction that retrieves a constant return value, wherein the optimized instruction is used to obviate the need for the function call. Dattatri, because it still requires function calls, does not teach or suggest the use of the optimized instruction.

Bacon does not satisfy the inadequacies of Dattatri. Bacon relates to the construction of a cache to store recent invocation results. Bacon also does not create an optimized instruction that obviates the need for a function call. Instead, Bacon relies on the function calls to generate the cache of recent results where the present invention replaces the function calls. Thus, Bacon does not teach or suggest any of the limitations of the amended independent claims.

The combination of Dattatri and Bacon simply does not teach or suggest each of the elements of the claimed invention. Neither Dattatri nor Bacon, alone or in combination, disclose the generation of an optimized instruction in lieu of a function call as recited in amended claims 1, 12, and 22. Given that these references, either alone or in combination, fail to disclose, teach,

or suggest all the claim limitations, they cannot, as a matter of law, render the amended claims obvious. Reconsideration of the § 103(a) rejections is therefore respectfully requested.

Claims 2-11, 13-21, and 23 depend from these independent claims, and thus, the dependent claims should be allowed for at least the same reasons, namely that the combination of the cited references does not teach the present invention. Since the remarks above are believed to distinguish over the applied reference, any remaining arguments supporting the claim rejections are not acquiesced to because they are not addressed herein.

Conclusion

It is believed that no further fees are due with this Response. However, the Commissioner is hereby authorized to charge any deficiencies or credit any overpayment with respect to this patent application to deposit account number 13-2725.

In light of the above remarks and amendments, it is believed that the application is now in condition for allowance, and such action is respectfully requested. Should any additional issues need to be resolved, the Examiner is requested to telephone the undersigned to attempt to resolve those issues.

Respectfully submitted,

Dated: _____

10/15/04



A handwritten signature in black ink, appearing to read "Tadd F. Wilson". The signature is fluid and cursive, written over a horizontal line.

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Amendments to the Drawings:

The Examiner rejected FIG. 8 because FIG. 8 should be, “designated by a legend such as --Prior Art-- because only that which is old is illustrated.” The figure has not been amended herein because Applicant respectfully asserts that the figure does not represent “prior art.” Rather, FIG. 8 represents in part an implementation of the invention. More specifically, FIG. 8 depicts a computer system suitable for practicing the invention as described at lines 8-11 on page 25, and thus, is an embodiment of the invention. Therefore, the computer system, of FIG. 8, cannot be prior art but represents an exemplary embodiment of the present invention.

In addition, the undersigned searched but did not find a rule indicating that such an implementation figure had to be labeled prior art and the Examiner has not cited one. Accordingly, Applicant respectfully requests the objection to the drawing as being prior art should be withdrawn.